TITLE: Universal Asset Class Benchmarking System, Process and Product

BACKGROUND OF THE INVENTION

Field of the Invention:

The present invention relates to the assessment of financial assets and, more particularly, to a system, process and product involving the novel benchmarking of source financial assets, e.g. publicized mutual fund information, and the creation therefrom of benchmark financial assets, e.g. derived mutual fund securities.

The Prior Art:

Value Line and Morningstar are both examples of current well publicized and well accepted mutual fund directories that track thousands of mutual funds. Both use a similar format, presenting information with a myriad of details, numbers, and commentary. Each ranks any mutual fund on a scale of one to five. For convenience, the following discussion will make reference to the Morningstar system of from one to five stars, five stars being the highest rating and one star being the lowest. However, it is to be understood that the Morningstar mutual fund format presented herein is merely exemplary of the variety of present and possible formats of publicized financial information that are or may become useful in accordance with the present invention.

Most new money now being invested in mutual funds, say 80 or 90%, goes into mutual funds that are rated 4 or 5 stars. Generally, investments in any mutual fund are associated with a "lottery effect". Despite the idiosyncratic nature of investor motivation, active investment in a particular fund is a self-fulfilling

prophecy that the associated price will rise. To the extent that this does not occur (i.e. the value does not increase), the investment will be liquidated. Conversely, inactive investment in a particular fund tends not to be dependent on directionality of prices per se.

It has been found that much of the long run relative performance in the mutual fund industry is a function of relative expense. This phenomenon applies to both equity funds and bond funds. Thus, as a practical matter, no-load funds tend to outperform load funds over time. This phenomenon applies despite the fact that relatively costly and more effective research expenses may affect performance favorably. In summary, those funds with the lowest expenses and the best research tend to achieve best results over time. There is a direct relationship between lower expenses and better research on one hand, and, for example, more stars on the other.

BRIEF DESCRIPTION OF THE INVENTION

The primary object of the present invention is to intensify the inverse relationship between relative expense and relative performance by creating structured securities that take advantage of publicized information about mutual funds with the highest ratings, i.e. 4 or 5 stars, while minimizing original research costs and other expenses. In essence, the present invention replicates the performance of relatively high expense mutual funds by benchmarking their portfolios at relatively low expense. More specifically, the object of the present invention is to provide specific systems and processes for benchmarking targeted,

relatively expensive, source portfolios of relatively high performance, and for producing therefrom relatively inexpensive, benchmark portfolios and securities of comparative performance.

The essence of the present invention is to track active, as well as more passive, managers, yet to outperform them by systematically providing lower expenses. It is a generally passive approach to outperforming active management. It creates a system/process/product, which is an improvement over current "passive" and "active" approaches to investment management. It incorporates the obvious demands of the public to invest in "active" investment management in the hope of a lottery style win, even though conventional dispassionate analysis would suggest that this endeavor is futile.

Semantics of the Terms, "index" and "benchmark"

Often the terms index and benchmark are used somewhat interchangeably. With respect to finance and hereinafter, it is preferred to use the term benchmark over index because it refers more accurately to the process of benchmarking a portfolio. Strictly speaking, it would seem that a benchmark is commonly more of a reference to the use of a benchmark within the process of benchmarking, whereas an index is more commonly viewed as a statistical term. Webster's defines "benchmark" as "a standard or reference by which others can be measured or judged", and defines "index" as "a number derived from a series of observations and used as an indicator or measure". Statistics textbooks more specifically define an "index number" as "a single figure that shows how a whole set of related

variables has changed over time or differs from place to place".

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the nature and objects of the present invention, reference is made to the following specification, which is to be taken in connection with the accompanying drawings, wherein:

Fig. 1 is a flow diagram of the universal asset class benchmarking system and process of the present invention;

Figs. 2a, 2b and 2c constitute a source portfolio illustration, abbreviated for simplicity, as shown in Microsoft Excel spreadsheets, demonstrating how a corresponding benchmark portfolio is equally weighted in accordance with the present invention;

Figs. 3a, 3b and 3c are a listing by Lipper Analytical Services, Inc., as of month-end August, 1999, of 138 portfolios, i.e. funds, wherein the Lipper investment objective description is "High Current Yield Funds";

Figs. 4a, 4b and 4c are a listing by Morningstar, Inc., of 125 portfolios, i.e. funds, wherein the Morningstar category is designated "High Yield Bond";

Fig. 5 is a listing which meets all of the criteria required pursuant to the present invention, i.e. 18 portfolios in total from the 138 Lipper source funds and the 125 Morningstar source funds;

Figs. 6a, 6b and 6c constitute a three fund/portfolio example of weighting the securities in the benchmark pursuant to the present invention; and

Fig. 7 is a benchmark portfolio corresponding to the three fund/portfolio example of Figs. 3a, 3b and 3c and Figs. 4a, 4b and 4c, pursuant to the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

General Discussion

The present invention contemplates benchmarking real portfolios as opposed to benchmarking indices. The following distinctions and similarities are critical.

(1) Unmanaged indices do not reflect transactional or operating costs and expenses, whereas managed portfolios do. Therefore, it is theoretically possible to more accurately track real portfolios than theoretical ones.

(2) It is not always possible to invest in all the securities in some indices (e.g., during the "Asian financial crisis" of 1998, it was not feasible to invest in most, if not all, of the securities contained in the MSCI Malaysia Index). Therefore, not only is it impossible to exactly mimic the financial performance of theoretical indices (i.e., due to operating and transactional costs), but in many cases it is impossible to mimic the security makeup of the theoretical index itself.

(3) Prospectus limitations may affect the ability of a

portfolio manager to track a theoretical index (e.g., limitations on the use of derivatives). For example, one or more Securities and Exchange Commission rules (as of 1999) forbid holding in aggregate of 25% of one security and/or industry sector. Yet, Royal Dutch Petroleum Company constituted in excess of 25% of the MSCI Netherlands Index.

(4) Just as with "index funds", the present invention creates an optimized representation of a basket of securities, which comprise an index (e.g., a portfolio sampling approach).

(5) They both functionally focus on tracking the financial performance of baskets of financial securities. However, instead of "active management" involving an emphasis on investment judgment, the present approach is fundamentally a form of "passive management" based on computation. This is not to say that certain "active" strategies might not be included to enhance the performance of the benchmark portfolio.

The Flowchart of Fig. 1 –
The Universal Asset Class Benchmark Process

The Portfolio Data – See block 10 in Fig. 1.

The most critical element of the present invention is the Portfolio Data, shown at 10, which requires at least two data level fields (portfolio and date) and at least two security level fields (CUSIPs and par amounts). (CUSIPs are unique identifiers of specific securities.)

This data is generated from one or more of the following four sources:

(1) Securities and Exchange Commission ("SEC") filings (these are referred to as "EDGAR filings") or the equivalent filings in other countries (i.e., in the case of those funds not registered in the United States). Generally, in the United States, all publicly traded funds are required to file at least annual, if not quarterly, statements.

(2) Actual annual, semi-annual and/or quarterly statements of the portfolios being tracked. Publicly traded funds issue annual, semi-annual and/or quarterly statements that provide a dated detailed list of securities comprising each portfolio.

(3) Data that comes directly from portfolio managers. Many mutual funds complexes, insurance companies, banks, etc. give detailed lists of the contents of their portfolios to various data providers.

(4) There are several data providers that compile security level data from both publicly and privately held portfolios. Essentially, these data providers use various combinations of the above three sources to compile these lists. This is clearly the easiest single source of the data required to create portfolio-based benchmarks.

The Asset Class Data – See block 12 in Fig. 1.

Depending on the benchmark being constructed, certain fields are matched with portfolio data. For example, certain equity portfolio data require a description of the security, sector code (possibly based on the Standard Industrial Classification (SIC) code), etc. A high yield corporate bond portfolio might additionally require coupon, maturity, call schedule, etc. This general set of data is designed to completely encompass the portfolio data and is referred to as the Asset Class Data. Depending on the asset class(es) from which the securites are drawn, there are typically several firms that provide this type of data to those firms that manage portfolios being benchmarked. This information is provided by several brokerage firms (e.g., Merrill Lynch and Salomon/Smith Barney), as well as by several firms unrelated to the brokerage and financial management industry (e.g., J.J. Kenny, which is owned by Standard and Poors, or EJVIBridge).

The Portfolio Tracking Data – See block 14 in Fig. 1

Related to the portfolio data is the portfolio tracking data. These values are used to aid in tracking those portfolios used to construct the benchmarks and to determine expenses charged to shareholders. This data is currently available from the following two primary sources:

(1) Lipper — This company provides portfolio level data (e.g., Net Asset Values ("NAVs"), returns, distribution yields, management fees, total expenses, defined asset groupings, etc.) for all publicly traded open-end funds,

closed-end funds, annuity/insurance products etc. Of particular importance are the NAVs and financial performance data.

(2) Morningstar — This company provides portfolio level data (e.g., Morningstar 3 year, 5 year, and 10 year ratings, management fees, total expenses, as well as defined asset groupings which closely mimic those of Lipper, etc.)

In addition, there are various other companies that provide similar sets of data, but the two listed above are almost prerequisites for this type of approach. For example, there may be several benchmarks based on certain 4 and 5 star Morningstar rated funds in one particular Lipper or Morningstar asset grouping. In addition, the various fund expenses (management expenses, distribution charges, etc.) need to be tracked in order to set the fees charged by the benchmark portfolios.

The Database – See block 16 in Fig. 1

Database 16 represents the sum of (1) the Asset Class Data, (2) the Portfolio Data, and (3) the Portfolio Tracking Data. This data ordinarily is stored in a relational database (e.g., an Oracle database) with the data organized by CUSIP and portfolio or benchmark. As with many aspects of practical finance, this is essentially a data management exercise.

Benchmark Formation – See block 18 in Fig. 1

Benchmark formation is based on business logic. For example, actively managed equity funds tend to have the highest expenses. The present invention specifically

contemplates Lipper and/or Morningstar based equity asset classes or subsets of those asset classes (i.e., only highly rated funds/portfolios). However, it is to be understood that the concept has general applicability.

Rebalancing – See block 20 in Fig. 1

As the underlying portfolios change, there will be rebalancing of the benchmarks and consequently rebalancing of the actual portfolios to reflect these changes. Benchmark and portfolio rebalancing pursuant to the present invention is inherently unique. In the "normal" passive indexing approach, the index is taken as a given (i.e., the index is typically exogenous to the system). In some cases, the index is determined by the manager. In the present case, it is not only an outcome of endogenous forces, but it is determined by exogenous forces (e.g., different portfolio managers, rating services, data availability, etc.) as well. This approach takes one or more real snapshots of one or more real portfolios then establishes a benchmark accordingly.

The Spreadsheets of Figs. 2a, 2b and 2c – how to equally weight a benchmark portfolio.

Figs. 2a, 2b and 2c constitute a simplified three portfolio example of how the securities in the benchmark are weighted. Fig. 2a shows the values used in this example, while Figs. 2b and 2c illustrate the values and formulas on which Fig. 2a is based (i.e., values only). Once the list of portfolios contained in the benchmark is complete, the next step is to calculate weights for each of the securities in the benchmark. The benchmark will reflect an equal weighting given to each portfolio that it

comprises. The following steps are preferred in equally weighting the portfolios comprising the benchmark.

(Step I) In this example, for each of the securities in each of the 3 portfolios/funds, combine the CUSIP and par amount data with pricing data (this is done in order to calculate market value weightings). In addition to price, other fields should be added (e.g., in this case coupon, maturity, any call schedule and/or sinking fund schedule, description, industry sector, etc.). In short, combine the portfolio data with the asset class data for that specific benchmark. Also, for each portfolio/fund consolidate any securities with duplicate identifiers (i.e., CUSIPs) by summing up the par values for that identifier.

(Step II) For each portfolio/fund in the benchmark calculate the estimated total market value for that portfolio:

$$PMV = \sum_{i=1}^{N} Par_i \ * \Pr ice_i$$

, where N = the number of securities in that portfolio/fund, and PMV = the portfolio/fund market value.

(Step III) Sum up all the PMVs

$$TBMV = \sum_{j=1}^{J} PMV^j$$

, where J = the number of portfolios/funds in the benchmark (in this case 3), and TBMV = total benchmark market value.

(Step IV) Create a scaling factor in order to equally weight the portfolios/funds by taking the reciprocal of the weight of each portfolio/fund:

$SF^{j} = 1/(PMV^{j} / TBMV)$

, where

SF^{j}

= the scaling factor for the jth portfolio/fund.

(Step V) Adjust the scaling factor so that the sum of the scaling factors equal unity:

$$ASF^{j} = SF^{j} / \sum_{j=1}^{J} SF^{j}$$

, where

ASF^{j}

= the adjusted scaling factor for the jth portfolio/fund, and

$$\sum_{j=1}^{J} ASF^{j} = 1$$

.

(Step VI) Adjust the securities in the benchmark so that each portfolio/fund receives an equal weight (as opposed to each security) by multiplying each security in each portfolio/fund by its appropriate adjusted scaling factor:

$$AMV_i^j = MV_i^j * ASF^j$$

, where

AMV_i^j

= the adjusted market value of security i in portfolio/fund j.

(Step VII) Based on step 6, create an adjusted weight for each security in each portfolio/fund in the benchmark:

$$x_i^j = AMV_i^j / (\sum^{j} \sum_{i=1}^{N} AMV_i^j * J)$$

, where

x_i^j
= the weight of the ith security in the jth portfolio/fund, and
$\sum_{j}^{J}\sum_{i=1}^{N} x_i^j = 1/J$
(by construction).

Over all the securities, the weights should add up to one. These weights form the foundation for constructing a real portfolio.

Therefore, for portfolio j = 1 (i.e., ABC12), N = 4, for portfolio j = 2 (i.e., DEF34), N = 3, and for portfolio j = 3 (i.e., GHI56), N = 3. Therefore, in this example J = 3 and 1/J = 33 1/3%.

Although there are many possible ways to equally weight a series of portfolios, the above sequence of steps serves as a reasonable methodology to achieve the goal of adjusting normal market weights to equalize the weight of each portfolio/fund across two or more portfolios/funds.

Balancing and Periodic Rebalancing of the Benchmark Portfolio

The initial creation of a benchmark portfolio is the net result of applying the CUSIPs and their related adjusted weights. Of course, in the above example an exact match to the benchmark may not be possible. In addition, it may not be economically desirable to exactly match the benchmark. Rebalancing is scheduled to occur periodically, for example, on a monthly basis. Rebalancing consists typically of periodically (due to portfolio/fund data constraints) repeating the benchmark creation process and adjusting the portfolio to reflect any change in the weights from the period before. Again, as with the creation of the benchmark, economic considerations (e.g.,

transaction costs) may limit the extent to which the rebalancing reflects an exact matching of the benchmark.

Specific Example I - the reference securities of Figs. 3a, 3b and 3c, the reference securities of Figs. 4a, 4b and 4c, and the derived securities of Fig. 5

Portfolio Inclusion Criteria

The following example is a corporate high yield bond portfolio that is composed of only those open end mutual funds that meet the following criteria:

(1) The fund/portfolio must be included in the relevant Lipper and Morningstar universe (i.e., those funds/portfolios common to both relevant asset class universes). For Lipper, those funds defined as having the investment objective "high current yield". For Morningstar, those taxable bond funds defined as "high-yield". Both require the fund have "at least 65% of assets in bonds rated below BBB" (as defined by Standard & Poor's) or Baa (as defined by Moody's). By definition, Standard & Poor's states that "debt rated 'BBB' are regarded as having adequate capacity to pay interest and repay principal. Whereas they normally exhibit adequate protection parameters (i.e., creditor's rights), adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity to pay interest and repay principal for debt in this category than in higher rated categories. Debt rated 'BB', 'B', 'CCC' and 'CC' are regarded, on balance, as

predominantly speculative with respect to capacity to pay interest and repay principal in accordance with the terms of the obligation. The rating 'C' is reserved for income bonds on which no interest is being paid. Debt rated 'D' is in default." Given there are two principal ratings agencies in the United States (a distant third is Fitch/IBCA), the alternative rating cutoff should be mentioned. The equivalent investment grade cutoff rating for Moody's investor service is Baa (i.e., functionally equivalent to Standard & Poor's BBB). By definition, Moody's states that "bonds which are rated Baa are considered medium grade obligations; i.e., they are neither highly protected nor poorly secured. Interest payments and principal security appear adequate for the present, but certain protective elements may be lacking or may be characteristically unreliable over any great length of time. Such bonds lack outstanding investment characteristics and in fact have speculative characteristics as well. Bonds that are rated Ba are judged to have speculative elements; their future cannot be considered as well assured. Often the protection of interest and principal payments may be very moderate and thereby not well safeguarded during both good and bad times over the future. Uncertainty of position characterizes bonds in this class. Bonds, which are rated B, generally lack characteristics of the desirable investment. Bonds

which are rated Caa are of poor standing. Such issues may be in default or there may be present elements of danger with respect to principal or interest. Bonds that are rated Ca represent obligations which are speculative in a high degree. Such issues are often in default or have other marked shortcomings. Bonds which are rated C are the lowest class of bonds, and issues so rated can be regarded as having extremely poor prospects of ever attaining any real "investment standing". Therefore, portfolios of this kind are predominantly composed of speculative grades of debt (i.e., BB and below by Standard & Poor's, and Ba and below by Moody's).

(2) The fund must have an overall Morningstar rating of five stars.

(3) Portfolio data (i.e., CUSIPs and par amounts) must be available for each portfolio meeting the above two criteria.

(4) The fund/portfolio must have some unique identifier (e.g., a five character Nasdaq® symbol – National Association of Securities Dealers Automated Quotation System). The identifier is helpful in confirming the identity of the fund/portfolio in order to construct and match up the various sets of data.

It is to be understood that this example is not meant to encompass all potential possibilities, but it should represent a relatively extreme case. For example, high yield corporate portfolios have many securities that are, by definition, illiquid and/or

distressed. Therefore, this example is meant to be a slight deviation from a strictly indexed portfolio where little or no deviation from the benchmark would be expected (e.g., certain equity asset classes). Given that the portfolio data the benchmark is based on is somewhat aged, it might be advisable to set certain rules with respect to filtering out very distressed and/or illiquid securities, or for that matter any securities which might represent a return drag on a derived benchmark. Clearly, one logical extension of this is to create portfolios that are an "enhanced" version of the original(s). For example, it is possible to systematically "tilt" toward one or more characteristics when those are viewed to be undervalued and to "tilt" away from one or more characteristics when those are viewed to be overvalued.

Figs. 3a, 3b and 3c, as of month-end August, 1999, constitute a list of 138 funds/portfolios, designated with an objective of "high current yield" by Lipper Analytical Services, Inc. The Lipper investment objective description is "High Current Yield Funds".

Figs. 4a, 4b and 4c, as of month-end July, 1999, constitute a list of 125 funds/portfolios, designated with an objective of "high yield bond" by Morningstar, Inc. The Morningstar category is "High Yield Bond".

Fig. 5 is a list, which meets all the criteria required (i.e. 18 portfolios/funds in total of the original 125 to 138 portfolios/funds). The Morningstar category is "High Yield Bond". The Lipper investment objective description is "High Yield Funds". It is from this list that the derived benchmark is constructed.

A Note on Morningstar Ratings

The following is a sequence of excerpts published by Morningstar in regard to: how Morningstar calculates its star ratings Although investors are sometimes confused by the uses and implications of the star rating, the calculation itself is relatively straightforward. For mutual funds that have at least 36 months of performance data, Morningstar assigns a rating of 1 to 5 stars. The rating is completely objective. A fund's rating is based on a mathematical calculation that examines relative historical risk and return. We calculate ratings for the trailing three, five and ten year periods.

Assembling Benchmark Securities and Ratings

To assign ratings, we subtract each portfolio/fund Morningstar Risk score from its Morningstar Return score. The portfolio/fund in each rating group then are ranked by this raw number, from highest to lowest. The top 10% of securities receive 5 stars, the next 22.5% receive 4 stars, the middle 35% receive 3 stars, the next 22.5% receive 2 stars, and the bottom 10% receive 1 star. (There is no 'zero' star rating – funds with less than 36 months of return data are simply not rated.)"

Weighting the Portfolio/Fund in the Benchmark

Once the portfolio/fund list comprising the benchmark is complete, the next step is to calculate weights for each portfolio/fund in the benchmark. The benchmark will reflect an equal weighting given to each portfolio/fund it comprises. The following steps are preferred for equally weighting each portfolio/fund in the benchmark. These steps are analogous to the corresponding steps associated with Figs. 2a, 2b and 2c, but are repeated now to ensure clarity.

(Step I) In this example, for each of the securities in each of the 18 portfolios/funds, combine the CUSIP and par amount data with pricing data (this is done in order to calculate market value weightings). In addition to price, other fields should be added (e.g., in this case coupon, maturity, any call schedule and/or sinking fund schedule, description, industry sector, etc.). In short, combine the portfolio data with the asset class data for that specific benchmark. Also, for each portfolio/fund consolidate any securities with duplicate identifiers (i.e., CUSIPs) by summing up the par values for that identifier.

(Step II) For each portfolio/fund in the benchmark calculate the estimated total market value for that portfolio:

$$PMV = \sum_{i=1}^{N} Par_i * \Pr ice_i$$

, where N = the number of securities in that portfolio/fund, and PMV = the portfolio/fund market value.

(Step III) Sum up all the PMVs (i.e.,

$$TBMV = \sum_{j=1}^{J} PMV^j$$

, where J = the number of portfolios/funds in the benchmark (in this case 18), and TBMV = total benchmark market value.

(Step IV) Create a scaling factor in order to equally weight the portfolios/funds by taking the reciprocal of the weight of each portfolio/fund:

$$SF^j = 1/(PMV^j / TBMV)$$

, where

SF^j
= the scaling factor for the jth portfolio/fund.

(Step V) Adjust the scaling factor so that the sum of the scaling factors equal unity:

$$ASF^j = SF^j / \sum_{j=1}^{J} SF^j$$

, where

ASF^j
= the adjusted scaling factor for the jth portfolio/fund, and

$$\sum_{j=1}^{J} ASF^j = 1$$

(Step VI) Adjust the securities in the benchmark so that each portfolio/fund receives an equal weight (as opposed to each security) by multiplying each security in each portfolio/fund by its appropriate adjusted scaling factor:

$$AMV_i^j = MV_i^j * ASF^j$$

, where

AMV_i^j
= the adjusted market value of security i in portfolio/fund j.

(Step VII) Based on step 6, create an adjusted weight for each security in each portfolio/fund in the benchmark:

$$x_i^j = AMV_i^j / (\sum^{j} \sum_{i=1}^{N} AMV_i^j * J)$$

, where

x_i^j
= the weight of the ith security in the jth portfolio/fund, and

$$\sum_{j}\sum_{i=1}^{N} x_i^j = 1/J$$

(by construction).

Specific Example II – the reference securities of Figs. 6a, 6b and 6c and the derived securities of Fig. 7

With respect to all of the securities, the weights should add up to one. These weights form the foundation for constructing a real portfolio. The following is a three portfolio/fund example in reference to Figs. 6a, 6b and 6c.

	Market Value (million $)	Scaling factor	Adjusted Scaling factor
Fund ABC12	$47.731	1.846	14.24%
Fund DEF34	$29.535	2.983	23.01%
Fund GHI56	$10.829	8.135	62.75%
Total	$88.096	12.963	100.00%

For portfolio j = 1 (i.e., ABC12), N = 46, for portfolio j = 2 (i.e., DEF34), N = 59, and for portfolio j = 3 (i.e., GHI56), N = 24. Therefore, in this example, J = 3 and 1/J = 33 1/3%.

There are many possible ways to equally weight a portfolio/fund series, but the above example is a preferred methodology to achieve the goal of adjusting normal

market weights to equalize the weight of each portfolio/fund across two or more portfolios/funds.

Benchmarking the Benchmark's Expenses

There are many different expenses and fees charged by portfolio managers (e.g., 12b-1 expenses, non-12b-1 expenses, contingent deferred sales charges, redemption charges, front-end loads, administrative expenses, administrative reimbursement expenses, advisory fees, audit/legal expenses, audit fees, legal fees, custodian expenses, director fees, fund accounting expenses, management fees, non-management fees, etc.). Therefore, there obviously are more than one way to categorize and/or account for charges to the portfolio client.

To simplify matters, and for practical reasons, it is likely that the actual expense or charge to any shareholder will be some direct fraction of the average total expenses charged by the portfolios/funds making up the benchmark. In this case the average total expense (i.e., as of the time the last financial statement for each fund was examined by Lipper and/or Morningstar) was approximately 99 basis points ("BPTs", 100 BPTs = 1%) of the assets under management. Therefore, on average, the 18 five star funds charge about $1 annually for every $100 under management.

A preferred way to charge shareholders for benchmarked securities embodying the present invention is to calculate the charging of expenses as a function of the what the underlying portfolios/funds charge. Thus, a proper charge would be say ½ of the total expenses that the average underlying portfolio/fund charges. Of course, expenses charged are a moving target and there is a need for some institutionalized updating

process, which would reflect any changes in the underlying portfolio/fund charges to their shareholders.

Thus, as long as the expenses charged are less than those charged the shareholders of portfolios/funds from which the benchmark is derived, and assuming the benchmark portfolio does no worse than the portfolios/funds from which the benchmark is derived, the derived benchmark will consistently beat the reference benchmark. This is due to the fact that financial performance in actual portfolios/funds is determined after most expenses are taken account of. As long as the benchmark portfolio keeps its financial performance up with the portfolios/funds from which it is derived, or as long as any under performance is less than the expense advantage, the benchmark portfolio should outperform the equally weighted group on which it is based.

Fig. 7 illustrates the benchmarked portfolio/fund derived from the reference portfolios/funds of Figs. 3a, 3b and 3c and Figs. 4a, 4b and 4c.

Balancing and Periodic Rebalancing of the Benchmark Portfolio

The initial creation of a benchmark portfolio is the net result of applying the CUSIPs and their related adjusted weights. Of course, in the above example an exact match to the benchmark may not be possible. In addition, it may not be economically desirable to exactly match the benchmark. It is likely that rebalancing will occur on a monthly basis. Rebalancing will consist of periodically (due to portfolio/fund data constraints) repeating the benchmark creation process and adjusting the portfolio to reflect any change in the weights from the period before. Again, as with the creation of

the benchmark, economic considerations (e.g., transaction costs) may limit the extent to which the rebalancing reflects an exact matching of the benchmark.

OPERATION

The benchmarking operation of the present invention involves the following important features:

(1) The benchmarking itself is unique. This benchmarking process focuses on a portfolio or set of portfolios not an index (e.g., the Standard & Poors' 500) or set of indices. In addition, the benchmark itself is intended to be tracked in a manner similar to an "index fund" tracking some index. However, in this case the benchmark is unique.

(2) The benchmark tracking is unique. Benchmarks are constructed to track the price and yield performance of one or more actual portfolios, not one or more indices (i.e., which can be theoretical in nature). For example, most indices do not include the cost of transacting, whereas the price and yield performance of actual portfolios reflect the actual expenses of transacting in the financial market(s).

(3) The present invention contemplates the issuance of shares. While there have been shares issued on certain exchanges (e.g., WEBS — World Equity Benchmark Shares on the American Stock Exchange, which attempt to track certain Morgan Stanley Capital International, Inc. Indices ("MSCI" Indices)) that attempt to track the price and yield performance of various indices, none to my knowledge have attempted to track one or more actual portfolios in the manner of the present invention.

(4) The management expense/total expense part is unique. No open- or closed-end mutual funds, unit trusts, WEBS, etc. set their expenses off those portfolios, which

they are benchmarked to. For example, pursuant to the present invention, expenses can be set to be some fraction of those of the benchmark. This clearly lends itself to a direct competitive advantage. One of the reasons often given to pay higher fees (although empirically wanting) is that one is buying the services of higher quality active managers. This type of expense discounting and portfolio benchmarking creates a relatively strong rational for purchasing this type of financial product over an individual portfolio. Therefore, the present financial system and process create an alternative form of indexed/benchmarked product, which more directly will compete with those funds deemed to be actively managed.